

SECTION 201

STORM WATER QUALITY

NOTE: THIS SECTION IS ADDED IN ITS ENTIRETY TO COMPLY WITH THE CITY OF STOCKTON'S NPDES PERMIT FOR STORM WATER DISCHARGES.

201-2.01 Description - This work shall consist of constructing and maintaining Best Management Practices (BMPs) as shown on project plans, in accordance with these Standard Specifications and Plans, the Special Provisions, and as directed by the City Engineer.

A BMP is defined as any program, technology, process, siting criteria, operating method, measure, or device which controls, prevents, removes, or reduces pollution. The various types of BMPs, source control or treatment controls, are presented in detail in the California Storm Water Best Management Practice Handbooks, Volumes 1-3, March 1993. Some of the BMPs are also presented in Caltrans Storm Water Quality Handbooks, May 10, 1996.

201-2.02 Objectives - The objective of storm water BMPs is to prevent the pollution of storm water to the maximum extent practicable (MEP). Categories of BMPs that address the prevention or removal of pollutants from storm water as a result of construction activities, erosion and sediment control, and post construction activities are listed in the following Sections 201-2.02A through 201-2.02C.

201-2.02A(1) Construction Practices - The objectives of the construction practices BMPs are to prevent the discharge of pollutants to storm water as a result of the following practices, good housekeeping, minimization and stabilization of disturbed areas, slope and channel protection, control of the site perimeter to prevent run-on and runoff of pollutants, and erosion and sediment control.

201-2.02A(2) Material Management - The objectives of the material management BMPs are to prevent the contamination of storm water as a result of improper handling and storage of materials. This can be accomplished by minimizing the storage of materials on-site, providing a designated storage area with secondary containment, substituting alternative materials, and implementing a spill prevention and control program.

201-2.02A(3) Waste Management - The objectives of the waste management BMPs are to prevent the contamination of storm water as a result of improper waste storage and disposal. This can be accomplished by providing appropriate on-site waste storage facilities and arranging for regular removal and disposal of the waste material in accordance with applicable regulations.

201-2.02A(4) Vehicle and Equipment Management - The objectives of the vehicle and equipment management BMPs are to prevent the contamination of storm water as a result of vehicle and equipment maintenance activities on the project site. This can be accomplished by avoiding the contact of storm water with wash water, fuels, lubricants and other by products of on-site maintenance activities.

201-2.02A(5) Contractor Training - The objectives of contractor training BMPs are to provide a clear understanding of the problems and the solutions available to the contractor and the employees. This can be accomplished in a variety of ways to promote ownership of the problems and the solutions by all individuals involved in the construction activity.

201-2.02B Erosion and Sediment Control - BMPs for erosion and sediment control during construction shall address site planning considerations, vegetative stabilization, physical stabilization, diversion of runoff, velocity reduction, and sediment trapping/filtering.

201-2.02B(1) Site Planning Considerations - The objectives of the site planning BMPs are to minimize the potential to discharge pollutants to storm water by reducing the amount and time that disturbed soils are exposed to erosion by wind, water, and vehicle tracking. This can be accomplished by proper sequencing of the construction effort and careful preservation of existing vegetation that is not scheduled for removal.

201-2.02B(2) Vegetative Stabilization - The objectives of the vegetative stabilization BMPs are to provide temporary and long term stabilization of soils exposed to erosive forces as a result of the construction project, and thereby prevent the pollution of storm water by sediment erosion. This can be accomplished with vegetative or physical barriers such as grasses or mulches.

201-2.02B(3) Physical Stabilization - The objective of physical stabilization BMPs is to prevent the pollution of storm water by residual dust and sediments created as a result of construction and vehicular activities by providing temporary and long term stabilization of soils. This can be accomplished by using geotextile fabrics and mats, using dust suppression and control measures, providing temporary structural stream or drainage channel crossings, and stabilizing construction site entrances and roads to prevent the erosion of disturbed soils.

201-2.02B(4) Diversion of Runoff - The objective of diversion of runoff BMPs is to prevent the pollution of storm water by the erosion of disturbed and undisturbed soils by physically diverting and conveying runoff to a desired location in a manner that minimizes erosion. This can be accomplished by grading the site to divert runoff, constructing temporary drains and swales, and installing slope drains.

201-2.02B(5) Velocity Reduction - The objective of velocity reduction BMPs is to reduce the velocity of the flow of the storm water runoff to a non-erosive velocity. This can be

accomplished by providing outlet protection to absorb energy of the flow being discharged, constructing check dams to reduce the velocity of the flow, and slope roughening and/or terracing to capture and control flow down the face of a slope.

201-2.02B(6) Sediment Trapping/Filtering - The objective of sediment trapping or filtering BMPs is to remove sediments from the storm water runoff. This can be accomplished by a physical straining of a portion of the soil material from the storm water runoff by a barrier and creation of a sedimentation zone behind the barrier. A variety of methods are available to create this condition, including silt fences, straw bale barriers, sandbag barriers, filter berms, sediment traps, and sedimentation basins.

201-2.02C Post Construction BMPs - Post construction BMPs shall provide permanent water quality enhancements for a project after construction is complete. These BMPs may be treatment or source control and are typically identified during project planning. Those projects that require a General Construction Permit must identify those post-construction BMPs that will be implemented at the completion of the project and that are consistent with the City of Stockton's Storm Water Management Program. Post-construction BMPs that are deemed appropriate for the City of Stockton include: pump station sumps and trash racks; retention or detention ponds and wetlands; permanent vegetation to act as filters (biofilters); physical pollutant control devices; material handling, storage, and disposal facilities; and/or a combination of BMPs.

201-2.02C(1) Pump Station with Sump and Trash Rack - The objective of this BMP is to enhance the water quality capabilities of pump stations that are required to address the storm water quantity issues associated with a project. The pump station sump is designed to capture coarse sediments, debris, and floatables for removal during maintenance operations. Opportunities to reduce the potential to pollute storm water and other media are also to be considered in the physical layout and mechanical equipping of the pump station.

201-2.02C(2) Regional Detention Pond - The objective of this BMP is to capture and detain storm water runoff for a period of time sufficient to allow the settling of particulate contaminants and uptake of dissolved contaminants. This BMP also can be designed to reduce peak discharges of storm water runoff for a design storm. Regional detention ponds typically have wetland vegetation, but can be developed without emergent vegetation. Area requirements for a regional detention pond can be substantial; however, they can be used to provide an aesthetic element to a project.

201-2.02C(3) Constructed Wetlands - The objective of this BMP is to reduce peak storm water discharges and provide treatment for the removal of pollutants. Pollutants are removed through a variety of mechanisms, including sedimentation, oxidation, and plant uptake. Constructed wetlands are constructed for storm water treatment and may require some physical features for the removal of floatables, etc. that are not designed into mitigation wetlands which are constructed for the loss of natural wetlands. Constructed wetlands typically include a forebay to trap floatables and large particulate materials, and a wetland

vegetation area for sedimentation and removal of dissolved constituents. Area requirements are similar to those required for a regional detention pond.

201-2.02C(4) Extended Detention Basin - The objective of this BMP is to reduce the peak storm water discharges and release the captured flows slowly to provide time for settling of pollutants. Typically this BMP is a modified version of a detention basin designed to detain large storms, with the outlet designed for the extended release of the runoff captured from a 2-year storm event.

201-2.02C(5) Biofilters - The objective of this BMP is to provide pollutant removal using a combination of physical and biological processes. Biofiltration is used to describe the simultaneous process of filtration, infiltration, adsorption, sedimentation, and biological uptake of pollutants as run-off travels over and through vegetation such as grass. Biofilters can be arranged in a variety of configurations.

201-2.02C(6) Sand/Oil Trap - The objectives of this BMP is to provide a permanent control device designed to remove floatables and settleable solids. Design criterion of this BMP is typically based upon the removal of petroleum compounds. This BMP is effective for small tributary areas where the potential for significant spill exists and this permanent control can be used as a secondary catchment device.

201-2.02C(7) Material Disposal - The objective of this BMP is to discourage the illegal dumping of non-storm water materials into private and municipal storm water collection, treatment, and conveyance systems. This is accomplished by providing permanent signage at catch basins, inlets, channels, and other storm water facilities with prohibitive language and discussion of the impact of illegal dumping on storm water quality. Alternatives for the disposal of selected material, such as used oil, etc. may be listed if appropriate.

201-2.02C(8) Covered Material Storage and Handling Area - The objective of this BMP is to reduce the potential for the discharge of pollutants to storm water discharges resulting from normal industrial and commercial activities associated with the storage and use of materials. This BMP consists of providing a permanent cover for material storage and handling areas to prevent contact with rainfall as well as providing secondary containment or drainage controls to prevent the discharge of materials to the storm drainage system in the event of a spill.

201-2.02C(9) Covered Waste Storage Area - The objective of this BMP is to reduce the potential for the discharge of pollutants to storm water as a result of rainfall washing waste materials into the storm drainage system. This BMP consists of providing a permanently covered area for the storage of waste materials prior to their proper disposal.

201-2.02C(10) Graded Pavement - The objective of this BMP is to prevent storm water runoff from washing over areas that may be contaminated with pollutants. This BMP is

accomplished by permanently grading the facility site to divert runoff around and away from an area that has the potential to be polluted.

201-2.02C(11) Multiple Systems - The objective of this BMP is to enhance the potential to reduce the discharge of pollutants to storm water by combining several BMPs. Examples of multiple systems are an extended detention basin with a tributary park area, graded pavement area that is also covered, etc.